

STEREO MOC Status Report  
Time Period: 2014:272 - 2014:278

STEREO Ahead (STA) Status:

1. The following Ground System anomalies/events occurred during this reporting period:

- None.

2. The following spacecraft/instrument events occurred during this week. Note that the Ahead observatory is operating on the first side lobe of the HGA to prevent overheating of the HGA feed assembly.

- On day 273, the 72<sup>nd</sup> momentum dump was executed successfully at 2200z, which imparted a delta V of 0.092 m/sec.
- The average daily science data return for Ahead, while operating on the first side lobe on the HGA, was 85 Mbits during this week.

STEREO Behind (STB) Status:

1. The following Ground System anomalies/events occurred during this reporting period:

- None.

2. The following spacecraft/instrument events occurred during this week:

- On day 272, during day 3 of the Behind solar conjunction spacecraft testing monitoring of operations on the second HGA side lobe during a simulated solar conjunction entry was conducted. At AOS of the DSS-43 support, the downlink signal was acquired on the second side lobe at the 633 bps downlink rate. As the spacecraft was rotating to minimize the buildup of system momentum, approximately eight minutes of telemetry were received on the HGA second side lobe during each rotation of the spacecraft, quite impressive DSN and RF performance. The fault protection system promoted the star tracker to AAD mode 12 minutes after the planned system reset on day 271 and also powered off IMU-A

two hours later. The SWAVES instrument remained on, as it will be for the actual solar conjunction, continuing to record space weather data at one packet/minute. As a planned result of the system reset, the SSR was re-partitioned to the solar conjunction configuration, which is identical to the current SSR configuration on the Ahead observatory. At 0530z the observatory resumed 3-axis stabilized attitude, via an on board timetag. No ground commands were sent to allow the three day hard command loss timer to expire on day 274.

- On day 273, during day 4 of the Behind solar conjunction spacecraft testing, monitoring continued. At AOS of the 70 meter DSS-63 support, the downlink signal was acquired on the second side lobe at the 633 bps downlink rate with good signal level. The first planned switch to the -Z LGA was monitored using a DSN 34 meter station, DSS-25, while the carrier power level verified the antenna switch, as expected, the signal level was too low for telemetry lock on the LGA. Before the switch, as a test of opportunity, this 34 meter station was used to test the downlink signal level at 633 bps on the second HGA side lobe, for which sufficient downlink margin, 2.5 to 4 dB, was received. The SWAVES instrument remained on, as it will be for the actual solar conjunction, continuing to record space weather data at one packet/minute. No ground commands were sent to allow the three day hard command loss timer to expire on day 274.
- On day 274, on day 5 of the Behind solar conjunction spacecraft testing, during the DSS-14 support, while monitoring the final two hours before the three day hard command loss timer expired, the performance of the +Z LGA was calibrated with the spacecraft rotating. Even though the received carrier power level was as expected, telemetry lock never occurred during the two hour test as the +Z LGA pattern is not favorable at this point in the orbit. At 1750z, the observatory was reset as expected from the expiration of the command loss timer. During the remaining 50 minutes of the support, carrier lock was not received. The DSN radio science receiver controller reported a weak signal that faded.
- Since the hard command loss timer initiated system reset on day 274, the DSN has been unable to achieve carrier lock on any of the subsequent nine supports. On day 278, during the DSS-63 support, three days after the expected command

loss timer should have expired again to reset the observatory, a series of commands were transmitted repeatedly in the blind at different uplink rates to re-establish communications with the spacecraft. After failing to establish communications following this activity, a spacecraft emergency was declared at 2000z to acquire the necessary DSN 70 meter station support to re-establish communications.